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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/539,881	06/16/2005	Heike Gregorius	09086-00227-US	5005
23416	7590	05/24/2006		EXAMINER
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			ART UNIT	PAPER NUMBER
			1713	

DATE MAILED: 05/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/539,881	GREGORIUS ET AL.
Examiner	Art Unit	
Caixia Lu	1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### **Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on \_\_\_\_.

2a)  This action is **FINAL**.                            2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## **Disposition of Claims**

4)  Claim(s) 1-7 and 10-15 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) \_\_\_\_\_ is/are allowed.

6)  Claim(s) 1-7 and 10-15 is/are rejected.

7)  Claim(s) \_\_\_\_\_ is/are objected to.

8)  Claim(s) 1-7 and 10-15 are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)  All   b)  Some \* c)  None of:

1.  Certified copies of the priority documents have been received.
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 6/16/05.

4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_ .

5)  Notice of Informal Patent Application (PTO-152)

6)  Other: \_\_\_\_ .

**DETAILED ACTION**

***Election/Restrictions***

1. This application contains claims directed to the following patentably distinct species: various metallocene compound of formula (I). The species are independent or distinct because they are not obvious variations of each other.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, no claim is generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which depend from or otherwise require all the limitations of an allowable generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species.

MPEP § 809.02(a).

2. During a telephone conversation with Attorney Ashley Pezzner on May 10, 2006 a provisional election was made with traverse to elect rac-dimethylsilanediylbis(2-methyl-4,5-benzindenyl)zirconium dichloride, claims 1-7 and 10-15. Affirmation of this election must be made by applicant in replying to this Office action. The rest of the

metallocene compound species are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

3. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 6, 7 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 6, the use of the term "obtainable" renders the claim ambiguous because a skilled artisan cannot assess whether the catalyst is actually obtained by the process of claim 1.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-4, 6, 7 and 10-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakayama et al. (US 6,339,128), Shamshoun et al. (US 5,968,864) and Suhm et al. (WO 01/46274, the equivalent US 2003/0130443 is referred hereinafter) independently.

The instant claims are directed to a catalyst, a process of making said catalyst comprising a) combining a support such as silica with aluminoxane and subsequently (b) adding the reaction product of a metallocene compound such as rac-dimethylsilanediylbis(2-methyl-4,5-benzindenyl)zirconium dichloride and alkylaluminum, and a polymerization process of using said catalyst.

Nakayama's examples 7 and 8 (cols. 21-22) demonstrate catalyst preparation and polymerization processes comprising contacting silica and methyl aluminoxane to provide an aluminoxane treated silica support, subsequently contact the support with dimethylsilanediylbis(2-methyl-4,5-benzindenyl)zirconium dichloride and triisobutylaluminum and propylene. Nakayama's teaching meets the limitations of the instant claims.

Similar rejection is made over Shamshoun's teaching, see col. 8, line 25 to col. 9, line 11.

Similar rejection is made over Suhm's teaching of paragraphs [0311] to [0313] on page 14.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakayama et al. (US 6,339,128) and Suhm et al. (WO 01/46274, the equivalent US 2003/0130443 is referred hereinafter).

Nakayama and Suhm are relied upon as shown above. It is noted the cited prior art does not expressly teach contacting metallocene and the trialkyl aluminum prior to contacting the alumoxane treated support. It is noted that metallocene complex of the cited prior art are chlorinated metallocene which often has poor solubilities in hydrocarbons, the chlorinated metallocenes are routinely treated with alkyl aluminum before use to provide the alkylated metallocene with improved solubilities in the reaction media.

Thus, it would have been obvious to a skilled artisan at the time the invention was made to employ treat the chlorinated metallocene complex with alkyl aluminum to provide an alkylated metallocene with improved solubility in the reaction media to provide a supported catalyst with minimized unsupported metallocene and thus reduce fouling during the polymerization process and in the absence of any showing criticality and unexpected results. When the alkylated metallocene prepared by treating the chlorinated metallocenes with alkyl aluminum is used to prepare the catalyst composition, the teaching of the cited prior art meets the limitation of the instant claims.

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10. Claims 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shamshoun et al. (US 5,968,864).

Shamshoun's teaching is relied upon as shown above. It is noted that Shamshoun does not expressly teach the step of evaporating the suspension medium after the addition of both metallocene and the trialkyl aluminum to the alumoxane treated support. This is because only small amount of hexane is used in Shamshoun's working examples when triisobutylaluminum is slurried with the aluminoxane treated silica supported metallocene. However, if too much of hexane were used when catalyst slurry is prepared, it would have been obvious to remove the excess amount of hexane for easy transportation unless there is showing of criticality and unexpected results.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Caixia Lu whose telephone number is (571) 272-1106. The examiner can normally be reached from 9:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful and the matter is urgent, the examiner's supervisor, David Wu, can be reached at (571) 272-1114. The fax numbers for the organization where this application or proceeding is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1700.

  
Caixia Lu, Ph. D.  
Primary Examiner